

# PERIODONTAL PRACTICE AND REFERRAL OF PATIENTS BY GENERAL DENTAL PRACTITIONERS IN PROVINCE NO.1 NEPAL

Pujan Acharya<sup>1\*</sup>, Ujwal Gautam<sup>2</sup>

## Affiliation

1. Assistant Professor, B.P. Koirala Institute of Health Sciences, Nepal.
2. Senior Resident, B.P. Koirala Institute of Health Sciences, Nepal.

## ARTICLE INFO

Received : 18 February, 2023

Accepted : 10 April, 2023

Published : 19 August, 2023

© Authors retain copyright and grant the journal right of first publication with the work simultaneously licensed under Creative Commons Attribution License CC - BY 4.0 that allows others to share the work with an acknowledgment of the work's authorship and initial publication in this journal.



ORA 347

DOI: <https://doi.org/10.3126/bjhs.v8i1.57293>

## Corresponding Author

Dr. Pujan Acharya  
Assistant Professor  
B.P. Koirala Institute of Health Sciences, Nepal  
Email: [poojan\\_drn@yahoo.com](mailto:poojan_drn@yahoo.com)  
ORCID No.: <https://orcid.org/0000-0002-7216-8430>

## Citation

Periodontal Practice and referral of patients by general dental practitioners in province No.1 Nepal. Pujan Acharya, Ujwal Gautam. BJHS 2023;8(1)20. 1989-1988.

## ABSTRACT

### Introduction

General dental practitioners and periodontists working in a close alliance is considered to bestow effective outcome in the context of diagnosis and management of periodontal diseases. Recently, general practitioners are inclined to render the majority of non-surgical procedures by themselves and avoid surgical part. This obscures functional as well as esthetic demand contributing to periodontally challenged conditions. In advanced stages, no matter how efficiently a skilled periodontist handles the case, redemption is not possible.

### Objectives

To assess the periodontal practice and referral of patients by general dental practitioners to periodontists.

### Methodology

An online survey using Google Forms was conducted among the general dental practitioners working in private clinics in province no.1, Nepal from November 2021 to January 2022. A total of 64 general dental practitioners were surveyed using a self-administered questionnaire. Descriptive statistics were calculated.

### Result

The response rate for the present study was 51.2% out of which only 17.2% referred patients to periodontists for non-surgical periodontal therapy and scaling was the most performed procedure by all the practitioners themselves. However, 92.2% referred patients to periodontists for surgical procedures and a majority of the referrals were for mucogingival surgeries. Majority of them expressed satisfaction regarding the number of continuing dental education programs being conducted despite minimum participation.

### Conclusion

Majority of the general dental practitioners seemed to perform non-surgical periodontal therapy by themselves while considering referral for surgical interventions. Also, minimum participation despite remarkable satisfaction in the conduction of continuing education programmes calls for a need to explore the inadequacy.

## KEYWORDS

Consultants; dentists; periodontal diseases; referral and consultation



## INTRODUCTION

The prevalence of periodontal disease globally is reported to range from 20-50%.<sup>1</sup> In the context of Nepal, 52.5% and 47.5% of the population were found to suffer from periodontitis and gingivitis respectively.<sup>2</sup> These data though old indicate that there is an overwhelming number of patients who need timely intervention so as to maintain the functional and esthetic integrity of the dentition. Moreover, periodontal diseases do not show many symptoms unless they have reached advanced stages of destruction. As a result, early diagnosis becomes crucial.

The liability to examine and evaluate the need for referral rests solely in the hands of general dental practitioners (GDPs).<sup>3</sup> GDPs include dental graduates registered at professional council of the country who practice dentistry as per the rule of law. They also include dental graduates with a specialization in one of the branches of dentistry, also registered in the council, who nonetheless practice general dentistry besides offering their expertise care. As per evidence, only a small fraction of GDP's time is dedicated to the prevention, diagnosis, and management of periodontal diseases.<sup>4</sup> However, Lanning et al. stated that a variety of periodontal services were offered by GDPs in the state of Virginia. The most common services provided were non-surgical in nature and regarding surgical interventions, referrals were made for procedures like surgical pocket management, soft tissue grafts, guided bone/tissue regeneration, implant placement, etc.<sup>5</sup> Similar findings were reported by studies done in a few parts of India.<sup>6,7</sup> Unfortunately, there is a remarkable dearth in dental literature regarding information about various types of periodontal practices and referrals rendered by GDPs to periodontists globally including Nepal.<sup>5-8</sup>

Therefore, as a new start, the present study was designed to collect information about the varieties of periodontal therapies performed and referred by GDPs in province one. Such information is anticipated to establish and maintain a sound referral base which is vital to a successful specialty practice.

## METHODOLOGY

An online descriptive cross-sectional study was conducted among the general dental practitioners practicing in private clinics of province number one, Nepal from November 2021 to January 2022. Ethical approval was obtained from Institutional Review Committee, B. P. Koirala Institute of Health Sciences, Dharan, Nepal (Ref. No. 66/078/079-IRC; Code No. IRC/2164/021) before conducting the study.

The sample size was calculated by considering a 95% confidence interval. According to literature review, it was found that 98% of the GDPs performed a phase I therapy.<sup>6</sup> Using one proportion formula for sample size estimation:  $n = z^2 p(1-p)/d^2$  where,  $z = 1.96$ ,  $p = 98$  and absolute precision ( $d$ ) of 3% and adding 10% to reduce various biases sample size was calculated to be 93. The total population of general dental practitioners in province one is ( $n$ ) 125. Considering finite population correction factor, sample size was adjusted to 54. Taking into account the low response rate from the e-survey, the adjusted sample size was inflated to include all population. Hence, all the general dental practitioners practicing in private dental clinics in province one who agreed

to give consent were included in the study. Periodontists, dental students, interns, and dentists working exclusively in academic institutes were excluded from the study.

A self-administered questionnaire developed by Mali et al., modified according to our practice setup was used in the study.<sup>6</sup> The questionnaire was prepared using Google forms via docs.google.com/forms and the link was emailed to the enrolled participants including a brief introduction on the background, the objective of the study, voluntary nature of participation, declarations of confidentiality and anonymity followed by questions on demographic and professional details, periodontal practice and referrals of patients. Only those participants who agreed to consent were allowed to respond in the subsequent sections. The filled questionnaires were extracted from Google Forms and exported to Microsoft Excel 2007 and converted into Statistical Package for Social Sciences version 20 for statistical analysis. Descriptive statistics were calculated like percentage, frequency, mean, and standard deviation (SD).

## RESULTS

Of 125 dentists who were approached, 64 (51.2%) responded to the survey. The mean ( $\pm$ SD) age of all the participants in the study was 33.4 ( $\pm$ 7.5) years with equal gender distribution. About half of the participants were Bachelor of Dental Surgery (BDS) graduates. Majority of them were from Morang [24 (37.5%)], Sunsari [22 (34.4%)], and Jhapa [13 (20.3%)]. The total years of the dental practice of the participants ranged from one year to 50 years with median years of practice as seven years (IQR: 3-11.75).

Slightly more than half [37 (57.8%)] of participants responded that they would perform a full mouth periodontal examination in all patients and [39 (60.9%)] agreed that they would record probing depth and loss of attachment while examining the periodontal health of patients with periodontitis.

Less than a quarter [11 (17.2%)] of participants responded that they referred patients to periodontist for phase I therapy. Regarding treatments performed by themselves at their clinics they responded variably. Almost all the GDPs reported having performed more than one procedures of phase I therapy. The most commonly performed procedure was scaling which was performed 58 times (15.4% of total phase I procedures). This was followed by instructions on proper brushing technique [53 (14%)], instruction on use of mouthwash [53 (14%)] and advice on cessation of deleterious habit [52 (13.8%)]. (Table 1)

**Table 1.** Phase I therapy [n=377] performed by the GDPs at their clinic

	n	%
Scaling	58	15.4%
Root Planing	25	6.6%
Advise mouthwash	53	14.1%
Advise proper brushing technique	53	14.1%
Advise stoppage of harmful habits	52	13.8%
Treatment of food impaction areas	27	7.2%
Minor orthodontic tooth movement	17	4.6%
Splinting	23	6.1%
Coronoplasty	31	8.2%
Correction of restorative and prosthetic irritational factors	38	10.1%



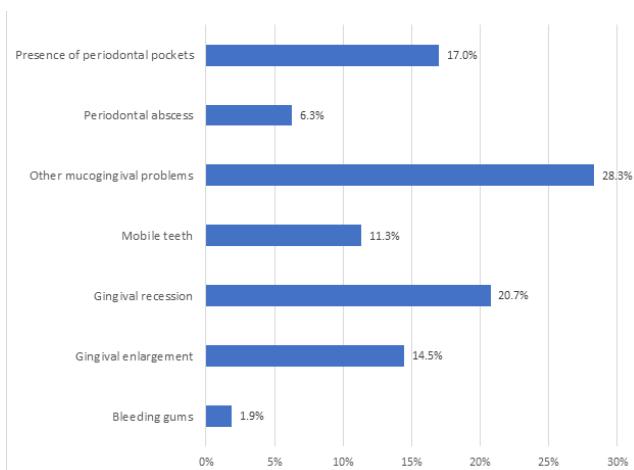
Similarly, multiple responses were obtained regarding types of surgical treatment rendered by GDPs at their clinics. Most commonly performed surgical procedure was flap surgery [39(25.7%)] followed by frenectomy [30(19.7%)] and gingivectomy as [28(18.4)]. (Table 2)

**Table 2: Types of surgical treatment [n=152] carried out by the GDPs at their clinic**

	n	%
Gingivectomy	28	18.4%
Flap surgery	39	25.7%
Frenectomy	30	19.7%
Vestibuloplasty	7	4.6%
Soft tissue graft	3	2.0%
Ridge augmentation	3	2.0%
Surgical crown lengthening	18	11.8%
Others	4	2.6%
None	20	13.2%

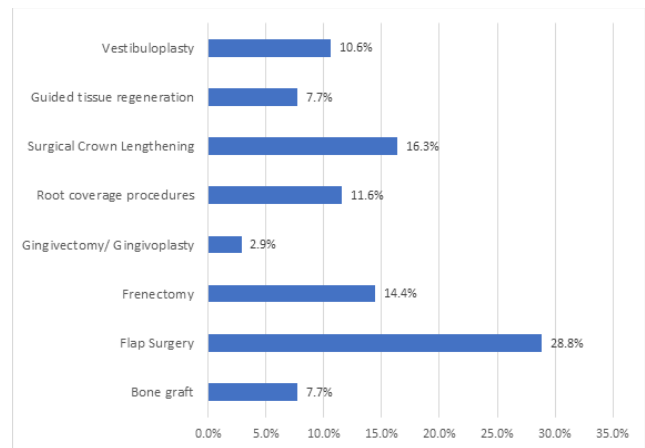
Different reasons for not referring their patients to periodontists were reported by the dentists out of which having very few patients with periodontal disease who got motivated for periodontal surgery was cited as the most common reason.

Majority [59(92.2%)] responded that they would refer patients or advise consultation to a periodontist for surgical procedures. The frequency of referral was once a month by [16(27.1%)] participants while once a week by [13(22%)] of them. Majority of the referrals were based on the presence of mucogingival problems [45(28.3%)], followed by gingival recession [33(20.8%)], presence of periodontal pockets [27(17.0%)], gingival enlargement [23(14.5%)] and tooth mobility [18(11.3%)]. (Figure 1)



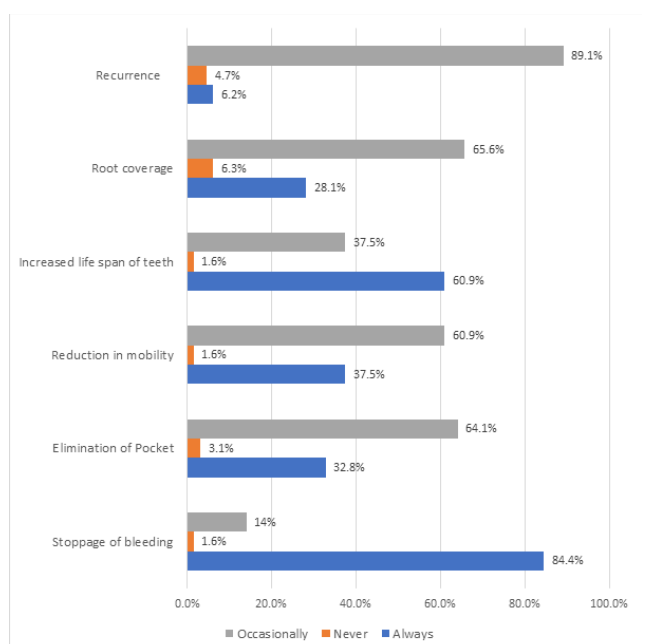
**Figure 1: Referral of patients to periodontists based on their signs and symptoms. (n=159)**

Flap surgery was the most common procedure [30(28.8%)] performed by periodontists at the clinic followed by surgical crown lengthening procedures [17(16.3%)], mucogingival surgeries including root coverage, vestibuloplasty and frenectomy [48(46.5%)] and, regenerative procedures including guided tissue regeneration, guided bone regeneration [16(15.4%)]. (Figure 2)



**Figure 2: Surgical procedures performed by the periodontists at the clinic of GDPs(n=104)**

Regarding their opinion about the success of periodontal treatment, [54(84.4%)] practitioners responded that stoppage of bleeding from gums after periodontal therapy was the most frequent outcome and [57(89.1%)] of them believed that recurrence of periodontal disease was an occasional finding. Also, [39(60.9%)] responded that periodontal therapy increased the life span of teeth. (Figure 3) In relation to this, most common factor responsible for recurrence of periodontal disease after treatment as cited by the dental practitioners was patient factor [62(51.2%)] followed by general dentist factor [37(30.6%)]. When asked about recall/maintenance therapy, almost all the participants [60(93.8%)] agreed that they recalled their patients for maintenance therapy after periodontal therapy. Among those who recalled their patients, the most frequent recall visit was reported for one month. On the contrary, three dentists recalled their patients only in case of recurrence.



**Figure 3: Participating dentists' opinion about possible outcomes of periodontal therapy**

More than half [36(56.3%)] of the participating dentists believed that periodontal treatment is beneficial to all concerned. Few [8(12.5%)] had an opinion that periodontal treatment is too costly for the patients.

Regarding implant placement, almost a quarter [16(25%)] of the dentists performed dental implant placement surgery. Of the dentists who referred their patients for dental implant placement, half referred their case to periodontists [32(50%)] followed by prosthodontists [24(37.5%)].

It was noted that only a minority [11(17.2%)] of the dentists had attended a CDE program based on periodontal or implant therapy during their private practice. Six participants had attended more than one CDE while five had attended at least one. More than three-quarters [49(76.6%)] of the participants reported that they are satisfied with such programs being conducted.

## DISCUSSION

Traditionally, an interdisciplinary model of therapy with general dentists and specialists together for periodontal treatment has been considered to have an effective outcome.<sup>9</sup> Newly graduated general dentists are considered to be the best source of referral for periodontists.<sup>10</sup> Regarding periodontists they are familiar with the latest techniques for diagnosing and monitoring periodontal diseases as well as trained extensively in performing advanced periodontal procedures.<sup>11</sup> A sound referral-based system can contribute to the timely diagnosis and treatment of periodontal diseases hence reducing the incidence of periodontally challenging cases in the community.

In the present study, the response rate was found to be [64(51.2%)] which is relatively higher than the recently reported average response rate for online surveys in a meta-analysis. The meta-analysis considers a 44% response rate to be reasonable for online surveys in education-related field.<sup>12</sup> The study precluded dental practitioners working in academic institutes because both the dentists and specialists working in academic institutes follow the referral protocol as per the patient's need. Moreover, the dentists must work under specialized supervision. So, the target population was GDPs working in private clinics whose periodontal practice and referral had to be surveyed. The majority of the surveyed GDPs routinely performed full-mouth periodontal examinations in all patients as well as comprehensive periodontal examinations in patients with periodontitis. This implies, despite the diversity in their duration of practice ranging from one to 50 years and the cumbersome nature of comprehensive periodontal assessment, they seem to consider it as an integral part of the dental examination and incorporate it into their private practice.

In the present study, majority of the GDPs performed non-surgical periodontal therapy which is in accordance with the results of earlier studies.<sup>5,13-15</sup> Basically, the procedures like scaling, instructions on oral hygiene maintenance, and use of mouthwash were mostly practiced similar to the Tasmanian registered GDPs surveyed in 2016.<sup>16</sup> On the

contrary, Lanning et al., and Ghiabi and Matthews et al. reported scaling with root planing and periodontal maintenance as the most frequently practiced periodontal service.<sup>5,13</sup> However, procedures like root planing, splinting and management of food impaction areas were barely addressed by the GDPs in the present study. Indifference toward splinting can be explained by the response of most GDPs who believed that reduced tooth mobility was an occasional outcome of periodontal therapy. Either such attitude, or lack of adequate knowledge regarding the management of mobile teeth must have demotivated them in handling patients with tooth mobility. Moreover, the irony is we are unaware whether these complaints are being addressed via referral to periodontists or simply being ignored which is in contrast with the survey, where almost half of the GDPs were found to refer patients with chief complaint of mobile teeth to the periodontists.<sup>6</sup>

Regarding preference for referral in context to periodontal surgeries, majority referred the patients to periodontists like the findings of previous studies.<sup>5,6,13</sup> Ghiabi and Mathews et al., and Linden in their survey reported the availability of periodontists in the community as an important factor in selecting a periodontist.<sup>13,17</sup> Also, a systematic review done to identify the non-clinical factors associated with periodontal referrals validated that location of specialists plays a pivotal role in deciding whether to make periodontal referrals.<sup>18</sup> Similarly, in this study the reason for such a bulk of referrals could be the availability of periodontists either working in private clinics or academic institutes in the vicinity of province number one. Only 7.2% rendered periodontal surgeries, which is relatively consistent with the studies conducted by Ghiabi and Mathews et al. (15%) and Darby et al. (16%) though in lower percentages.<sup>13,15</sup> But studies by Lanning et al. (48%) and Gilbert et al. (32%) reported a higher percentage than the present study.<sup>5,19</sup> Such variations could be attributed to the nationwide differences in sample selection, training received in undergraduate programs, further training or specific courses, and involvement of dental hygienists in their private practice. In this study, no such questions were asked which would reveal the presence or absence of dental hygienists in their practice. Interestingly, most of the referrals were based on the presence of gingival recession and other mucogingival problems, presence of periodontal pockets, gingival enlargement, and implant placement. This finding is additionally supported by their responses which reveal that procedures like flap surgery, GBR, and implant placement were managed by periodontists. The data also hints that the referral by GDPs was focused on the cases they thought specialists should manage. This in a way also clarifies that the GDPs still respect and follow the "when to treat and when to refer" protocol.<sup>20</sup> However, those who did not refer cited different reasons for not referring out of which lack of patients who were motivated for surgery was the most common reason. Similar reasons have been reported by several studies done previously.<sup>5,11</sup> This calls for periodontal health awareness campaigns routinely targeting varying groups of population.



There is consensus among the GDPs that there is a stoppage of bleeding from gums always after periodontal treatment which can be attributed to the fact that majority of their practice is limited to non-surgical therapy and scaling precisely for which almost all of them recall the patients for maintenance. This gives them an opportunity to evaluate and visualize the positive outcome. This finding again is in line with a study done in Pune.<sup>6</sup> However, they seemed to be skeptical about the positive outcomes of periodontal therapies like management of mobile teeth and, pocket elimination and root coverage which lay the foundation of periodontal surgical procedures. This shows the lack of awareness among the GDPs regarding evolution and recent advances in the field of periodontics. In addition to this, lack of awareness and maintenance among the patients was considered accountable for such recurrences. Regarding the cost-effectiveness of periodontal procedures, most of the GDPs assumed it to be lucrative which is in contrast with the study carried out among one hundred general dental practitioners in India.<sup>6</sup>

Majority of the GDPs did not provide implant service to the patient and when asked about their choice of referral for the same only half of them opted for periodontists. This is relatively higher when compared to the GDPs practicing in Pune where the majority did not believe that implants are an integral part of periodontist's armour and the study done in Belgaum, India where only 8% of the GDPs preferred periodontists for implant placement.<sup>6,7</sup> Last but not least, there appears a contradictory response which reveals minimum participation of the GDPs despite noteworthy satisfaction regarding the number of CDE courses being conducted. This might be because location wise such programs are conducted beyond their reach. Hence, it seems crucial that we ensure maximum participation of GDPs in such formal training or courses.

## CONCLUSION

The result shows quite a good congruence with previous studies as majority of the GDPs seemed to perform non-surgical periodontal therapy by themselves while considering referral for surgical interventions. Only small number of participants preferred referring patients to periodontist for phase I therapy while referral for surgical

intervention was recorded to be significant. Their participation in CDE courses appears disappointing which could be responsible for their lack of awareness regarding the recent evidence-based updates and the positive outcomes of periodontal therapy.

## RECOMMENDATIONS

The present study being the first of its kind to publish the information regarding periodontal practice and referral among limited Nepalese GDPs recommends a more elaborate multicenter record-based study in future. The possible loopholes for insufficient participation of the GDPs in formal education courses should also be identified. Easily accessible continuing dental education (CDE), focusing more on preventive and surgical aspects of periodontal problems as well as periodontal health awareness programs targeting varying groups of population should be routinely conducted.

## LIMITATIONS OF THE STUDY

There are limitations to this study which includes participation of GDPs from selective districts of province no. 1, the result of which cannot be generalized to the entire GDPs practicing in the province. Also, the results of the current study are based on GDP's self-reported practice and referral behaviors. A certain degree of response bias can be expected in the study. Despite the limitations, the study contributes to the existing literature on periodontal practice and referral among GDPs which is limited globally and provide motivation to conduct studies further to assess entire GDPs practicing in Nepal.

## ACKNOWLEDGEMENT

The authors would like to acknowledge Professor Dr. Shivalal Sharma, Dr. Sujan Gautam and all the general dental practitioners who consented to participate in the survey.

## CONFLICT OF INTEREST

None

## FINANCIAL DISCLOSURE

None



## REFERENCES

1. Chen MX, Zhong YJ, Dong QQ, Wong HM, Wen YF. Global, regional, and national burden of severe periodontitis, 1990-2019: An analysis of the Global Burden of Disease Study 2019. *J Clin Periodontol.* 2021;48(9):1165-1188. DOI: 10.1111/jcpe.13506.
2. Rajkarnikar J, Acharya J. Prevalence and severity of periodontal diseases among Nepalese adults - a hospital based study. *J Coll Med Sci-Nepal.* 2015;10(1):11-16. DOI:10.3126/jcsmn.v10i1.12762.
3. Goel K, Goel P, Goel S. Negligence and its legal implications for dental professionals: A Review. *TMUJ.* 2014;1(3):113-8.
4. Gift HC. Awareness and assessment of periodontal problems among dentists and the public. *Int Dent J.* 1988;38(3):147-53. PMID: 3053461.
5. Lanning SK, Best AM, Hunt RJ. Periodontal services rendered by general practitioners. *J Periodontol.* 2007;78(5):823-832. DOI:10.1902/jop.2007.060391.
6. Mali A, Mali R, Mehta H. Perception of general dental practitioners toward periodontal treatment: A survey. *J Indian Soc Periodontol.* 2008;12(1):4. DOI:10.4103/0972-124X.44086.
7. Halemani S, Sanikop S, Patil S, Jalli V. Perception regarding factors related to periodontal therapy among general dental practitioners of Belgaum city - a questionnaire survey. *Oral Health Prev Dent.* 2014;12(2):183-189. DOI:10.3290/j.ohpd.a31665.
8. Zemanovich MR, Bogacki RE, Abbott DM, Maynard JG, Lanning SK. Demographic variables affecting patient referrals from general practice dentists to periodontists. *J Periodontol.* 2006;77(3):341-349. DOI:10.1902/jop.2006.050125.
9. Newman MG, Takei HH, Klokkevold PR, Carranza FA. Carranza's clinical periodontology. 12th ed. St. Louis, Missouri: Elsevier/Saunders; 2015. p.658.
10. Brown IS, Salkin LM, Vanderveer R. The current status of professional relationships between periodontists and general dentists. *J Am Dent Assoc.* 1981;102(6):854-858. DOI:10.14219/jada.archive.1981.0210
11. Sathyamurthy P, Padhye A, Gupta H. Knowledge of diagnosis, treatment strategies, and opinions on periodontal treatment procedures among general dentists in an Indian urban population: A questionnaire survey. *J Indian Assoc Public Health Dent.* 2018;16(1): 62-71. DOI.org/10.4103/jiaphd.jiaphd\_108\_17.
12. Wu MJ, Zhao K, Fils-Aime F. Response rates of online surveys in published research: A meta-analysis. *Computers in Human Behavior Reports.* 2022;7:100206. DOI.org/10.1016/j.chbr.2022.100206.
13. Ghiabi E, Matthews DC. Periodontal practice and referral profile of general dentists in Nova Scotia, Canada. *J Can Dent Assoc.* 2012;78:c55. PMID: 22673218.
14. Alblowi JA, Zahid TM. Periodontal services rendered by general dental practitioners in Saudi Arabia. *Clin Cosmet Investig Dent.* 2019;11:53-60. DOI:10.2147/CCIDE.S191252.
15. Darby I, Angkasa F, Duong C, Ho D, Legudi S, Pham K, et al. Factors influencing the diagnosis and treatment of periodontal disease by dental practitioners in Victoria. *Aust Dental J.* 2005;50(1):37-41. DOI:10.1111/j.1834-7819.2005.tb00083.x
16. Kraatz J, Hoang H, Ivanovski S, Ware RS, Crocombe LA. Periodontal diagnosis, treatment, and referral patterns of general dental practitioners. *J Invest Clin Dent.* 2019;10(3). DOI:10.1111/jicd.12411.
17. Linden GJ. Variation in periodontal referral by general dental practitioners. *J Clin Periodontol.* 1998;25(8):655-61. DOI:10.1111/j.1600-051X.1998.tb02502.x.
18. Kraatz J, Hoang H, Ivanovski S, Crocombe LA. Non-clinical factors associated with referrals to periodontal specialists: A systematic review. *J Periodontol.* 2017;88(1):89-99. DOI:10.1902/jop.2016.160318.
19. Gilbert GH, Gordan VV, Korelitz JJ, Fellows JL, Meyerowitz C, Oates TW et al. Provision of specific dental procedures by general dentists in the National Dental Practice-Based Research Network: questionnaire findings. *BMC Oral Health.* 2015;15(1):1-12. DOI:10.1186/1472-6831-15-11.
20. Jeffcoat M. When to treat: when to refer. *Int Dent J.* 1993;43(2 Suppl 1):185-91. PMID: 8320014.

